Intensive Family Preservation Services to prevent out-of-home placement of children: a systematic review and meta-analysis.

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Conflict of interests: D. Forrester was the lead researcher for two of the studies. He was not involved in the quality assessment of any of the studies included in the review.

Abstract

Background: Intensive Family Preservation Services (IFPS) are in-home crisis intervention services designed to help families with children at imminent risk of out-of-home placement.

Objectives: To assess the evidence of the effectiveness and cost-effectiveness of IFPS in reducing the need for children to enter out-of-home care.

Participants and Setting: Children <18 years and their families in the home setting.

Methods: A systematic review and meta-analysis was carried out by searching 12 databases and 16 websites for publications up to January 2019.

Results: 1948 potentially relevant papers were identified, of which 37 papers, relating to 33 studies, met our inclusion criteria. Studies reported outcomes at child or family level. There were significant reductions in relative risk (RR) of out-of-home placements in children who received IFPS compared with controls at child level at three, six, 12 and 24 months' follow-up (RR 0.57, 95% CI 0.35 to 0.93, RR 0.51, 95% CI 0.27 to 0.96, RR 0.60, 95% CI 0.48 to 0.76, RR 0.51, 95% CI 0.30 to 0.87 respectively). At family level, there was not a significant reduction in RR of placement. Economic evidence was limited to cost analyses or cost-cost offset analyses.

Conclusion: The available evidence, at child level, suggests that IFPS are effective in preventing children from entering care up to 24 months after the intervention. Placement outcomes reported at family level did not demonstrate a significant reduction in out-of-home placements. The economic analyses suggest that IFPS could be cost-saving; however, evidence of cost-effectiveness generated by full economic evaluations is needed.

Keywords

Intensive Family Preservation Services; social work; child protection; out-of-home care; systematic review; meta-analysis.

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1. Introduction

Intensive Family Preservation Services (IFPS) provide home-based support to families with children at imminent risk of out-of-home placement. IFPS aim to reduce the number of children entering care unnecessarily (Tully, 2008) by stabilizing the crisis that families are experiencing, improving family functioning and reducing the risk of harm (Kinney, Haapala, Booth, & Leavitt, 1991). Crisis intervention theory within the underpinning model proposes that families in crisis are more likely to be motivated to change and open to learning new behaviors (Caplan, 1964).

The original Homebuilders model of IFPS was established in Washington State, USA, in 1974 (Forsythe, 1992) with the key characteristics of responding promptly to families (within 24 hours of a referral), offering short-term support (between 4-6 weeks) and working with families in their home environment. Each family is assigned a caseworker who is available on a 24/7 basis. Caseworkers have small caseloads of two or three families to ensure that they can provide intensive and flexible help that is tailored to the families' needs and can include skill development, therapy and/or material help (National Family Preservation Network, 2009).

IFPS have been widely used in the USA (National Family Preservation Network, 2009) and delivered internationally, in Australia (Campbell, 1998), the Netherlands (de Kemp, Veerman, & Tjeerd ten Brink, 2003), Belgium (Puyenbroeck et al., 2009) and the UK (Forrester, Copello, Waissbein, & Pokhrel, 2008). The services are referred to by a variety of names (e.g. Families First (Brandon & Connolly, 2006), Family Enhancement Program (Ciliberti, 1998) and Option 2 (Forrester et al., 2008)), but they have the same goal of supporting 'high risk' families to stay together.

Previous reviews of IFPS report mixed results for the prevention of out-of-home placements (Al et al., 2012; Daegnais, Bastien, Begin, Fortin, & Tourigny, 2003; Fraser, Nelson, & Rivard, 1997; Heneghan, Horwitz, & Leventhal, 1996; Lindsay, Martin, & Doh, 2002; Miller, 2006; Schweitzer, Pecora, Nelson, Walters, & Blythe, 2015). There is some evidence that IFPS are effective in reducing care entry for certain subgroups, for example, children with conduct disorder (Fraser et al., 1997) or children who have previously experienced a placement (Schweitzer et al., 2015), but the overall effectiveness or cost effectiveness of the intervention remains unclear.

Miller (2006) completed an economic analysis of IFPS in Washington State and concluded that the Homebuilders model produced $2.59 of benefits for each dollar spent (2005 US dollars). It is not known whether this finding can be applied to IFPS delivered elsewhere.

Our review aims to assess the international evidence and inform whether IFPS is an effective and cost-effective intervention for keeping families together and reducing the number of children who enter public care.

2. Methods

The review was registered on the International Prospective Register of Systematic Reviews (PROSPERO) (CRD42018118073). It adheres to standard Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher, Liberati, Tetzlaff, & Altman, 2009).

2.1 Definitions

IFPS are interventions that adopt the key service characteristics of the Homebuilders model (Kinney, Madsen, Fleming, & Haapala, 1977). Out-of-home placement is defined as a child or young person looked after by a local authority (or international equivalent), placed under a court order or a formal voluntary agreement with parents. The definition of care did not

include informal care arrangements or arrangements where continued statutory involvement was not specified (e.g. adoption).

2.2 Search strategy

Twelve electronic databases were searched from 1st January 1974 until 31st December 2018 for studies investigating the effectiveness of IFPS, with or without a simultaneous economic analysis (Figure 1). Website searching was conducted by using the search terms 'family preservation', 'homebuilders' and 'families first'. We checked reference lists of included studies, undertook citation tracking and contacted a panel of international experts. There were no restrictions on geographical location or language (see Appendix 1 in the supplementary materials for the search strategy).

2.3 Screening and data extraction

Inclusion criteria; studies that measured the effectiveness of IFPS and reported out-of-home placement as an outcome measure and those that undertook partial or full economic evaluations were included. We included randomized controlled trials (RCTs) and quasi-experimental studies that included a control or comparison group. We excluded: literature reviews, editorials, modelling studies that did not contain primary data, and case-control, cohort, cross-sectional and uncontrolled before-and-after studies.

Two authors (UN and ZB) searched databases and screened titles and abstracts for potential studies. Full texts of the selected papers were evaluated against the inclusion criteria. Discrepancies were resolved by consensus or arbitration involving a third author (AK).

Two reviewers (UN and ZB) extracted data from included papers using a standard data extraction sheet. AE completed a second data extraction form for economic analyses with ambiguities resolved through referrals to a further author (SP). Data on costs, outcomes and cost-effectiveness were extracted from each study, in addition to the results of economic

analyses and the local cost-effectiveness thresholds used by decision makers to determine cost-effectiveness.

2.4 Analysis

The quality of the included studies was assessed by UN and ZB and disagreements resolved by consensus, or arbitration (AK). RCTs were assessed using the Cochrane risk of bias tool (Higgins & Green, 2011). For other controlled, non-randomized studies of interventions the ROBINS-I risk of bias tool was used (Sterne et al., 2016). GRADE was employed to judge the certainty of the evidence (GRADE Working Group, 2004).

One author (AE) assessed the quality of the economic evaluations using the Consolidated Health Economic Evaluation Reporting Standards (CHEERS) guidance (Husereau et al., 2013). Full economic evaluations were assessed using the full checklist and partial economic evaluations were assessed against the relevant elements.

The IFPS reported in each study was assessed based on four key components of the Homebuilders model: (1) the intervention was delivered to families with children at imminent risk of placement; (2) families were provided with a response within 24 hours of referral; (3) caseworkers were available to families 24 hours, 7 days a week; and (4) caseworkers worked with no more than three families at a time. These four components were selected from a list of sixteen used in the review by Miller (2006) (for the full list see Tully (2008)) as they focus specifically on programme delivery and were considered to be the most important by the review authors. Two authors (UN and ZB) judged each component as present, absent or unclear based on the descriptions available in the studies. A total score of three or more present items was used to demonstrate high fidelity.

Meta-analyses were undertaken using a random-effects model, given the expected degree of heterogeneity in the population and design between studies. We analyzed data on an intention-to-treat basis. Results were expressed as Relative Risk (RR) with 95% confidence

intervals. Heterogeneity was tested for using the I^2 statistic and significant heterogeneity assumed if I^2 is greater than 40% (i.e. more than 40% of the variability in outcome between trials could not be explained by sampling variation). Where possible, subgroup analyses (based on model fidelity and risk of bias) were conducted. All analyses were conducted in Comprehensive Meta-Analysis version 3. Evidence of publication bias was assessed graphically using funnel plots and statistically using Begg and Egger tests (Begg & Mazumdar, 1994; Egger, Smith, & Phillips, 1997).

Economic analyses were stratified into two broad groups. The partial evaluation group included both cost analyses and cost-cost offset analyses whereas the full economic evaluation group encompassed cost-effectiveness analyses, cost-utility analyses, cost-benefit analyses, cost-consequence analyses and cost-minimization analyses (Drummond, O'Brien, Stoddart, & Torrance, 1997; Sefton, 2003). The total number of partial and full economic evaluations were recorded and results from these were tabulated (see Appendix 2 in the supplementary materials). Methodological variations between studies, including variations in care practices across jurisdictions and variations in the relative prices of labor and capital inputs across jurisdictions, prevented a pooling of economic data akin to the meta-analyses performed on the effectiveness estimates. Rather, a narrative synthesis was used to describe the findings of the review of economic evidence for alternative study types.

3. Results

3.1 Description of the studies

The PRISMA flow diagram summarises the study ascertainment process with 29 papers satisfying the inclusion criteria and included in the review (see Figure 1). An additional eight papers met our criteria but were unobtainable (see Table 1). We extracted data from the abstracts of these papers, and summary descriptions of the studies that were included in

books and previous reviews (Heneghan et al., 1996; Lindsay et al., 2002; Pecora, Fraser, Nelson, McCroskey, & Meezan, 1995; Schuerman, Rzepnicki, & Littell, 1994).

The 37 papers included in this review related to 33 studies, seven of which included a partial economic evaluation alongside the main effectiveness study. Seventeen studies reported out-of-home placement at child level (see Table 1) and reported the total number of children within families who entered care, with the exception of two studies that reported placement outcomes for one target child per family (Berquist, Szwejda, & Pope, 1993; Ciliberti, 1998). Thirteen studies treated the family as the unit of analysis (see Table 1) and reported care entry as an outcome when one or more child within the family experienced an out-of-home placement. Yuan, McDonald, Wheeler, Struckman-Johnson, and Rivest (1990) reported placement rates at both family and child level. It was unclear whether the placement rates reported by Wheeler, Reuter, Struckman-Johnson, and Yuan (1992) were at the family or child level in the review by Heneghan et al. (1996). Placement rates were not available for the Center for the Study of Social Policy (1988) study.

RCTs with obtainable papers had either a high (n=9) or unclear risk of bias (n=3). Controlled studies had a moderate (n=6), serious (n=6) or critical risk of bias (n=1) (see Table 1). The quality assessment of the seven partial economic evaluations as scored against the 20 relevant criteria of the CHEERS checklist had an average score of 6, with scores ranging from one for the study by Raschick (1997) to 11 for the studies by Berquist et al. (1993) and Dennis-Small and Washburn (1986).

Table 1. Study characteristics, risk of bias and IFPS model fidelity.

Author (year)	Country	Study design	Risk of bias		Fidelity to Homebuilders	Unit of analysis
			ROBINS-I	Cochrane		
Berquist et al. (1993)	UK	CT	Serious	-	High	Child
Biehal (2005)	UK	CT	Serious	-	Low	Child
Blythe and Jayaratne (2002), Walters (2006)	US	RCT	-	High	High	Child
Brandon and Connolly (2006)	UK	CT	Serious	-	Low	Family
Center for the Study of Social Policy (1988)*	US	Unknown	Unknown	Unknown	Unknown	Unknown
Ciliberti (1998)	US	CT	Moderate	-	High	Child
Daegnais et al. (2003)	Canada	CT	Moderate	-	Low	Child
Dennis-Small and Washburn (1986)	US	CT	Moderate	-	High	Child
Feldman (1991a), Feldman (1991b)	US	RCT	-	Unclear	High	Family
Forrester et al. (2008), Forrester, Holland, Williams, and Copello (2014)	UK	CT	Moderate	-	High	Child
Halper and Jones (1981)	US	RCT	-	High	Low	Child
Hennepin County Community Services Department (1980)*	US	RCT	-	Unknown	Unknown	Family
Jones (1976), Jones (1985)	US	RCT	-	High	Low	Child
Kirk and Griffith (2004)	US	CT	Moderate	-	High	Child
Lyle and Nelson (1983)*	US	RCT	-	Unknown	Unknown	Family
Mitchell, Tovar, and Knitzer (1989)*	US	RCT	-	Unknown	Unknown	Family
Nebraska Department of Public Welfare (1981)*	US	RCT	-	Unknown	Unknown	Family
Pecora, Fraser, and Haapala (1991)	US	CT	Serious	-	Utah= Low, Washington= High	Child
Raschick (1997)	US	CT	Serious	-	Low	Child
Rubin (1997)	US	CT	Critical	-	Low	Child
Schuerman et al. (1994)	US	RCT	-	Unclear	High	Family
Schwartz, AuClaire, and Harris (1991)	US	CT	Moderate	-	High	Child

Szykula and Fleischman (1985)	US	RCT	-	High	Low	Child
US Department of Health and Human Services (2002a)	US	RCT	-	High	High	Family
US Department of Health and Human Services (2002b)	US	RCT	-	High	High	Family
US Department of Health and Human Services (2002c)	US	RCT	-	High	Low	Family
US Department of Health and Human Services (2002d)	US	RCT	-	High	High	Family
Walton (1997)	US	RCT	-	High	Low	Child
Walton (2001)	US	RCT	-	Unclear	Low	Family
Wheeler et al. (1992)*	US	CT	Unknown	-	Unknown	Unknown
Willems and Rubeis (1981)*	US	RCT	-	Unknown	Unknown	Family
Wood, Barton, and Schroeder (1988)	US	CT	Serious	-	High	Child
Yuan et al. (1990)*	US	RCT	-	Unknown	Unknown	Child & Family

Note: * unobtainable papers, CT= controlled trial, RCT= randomized controlled trial, ROBINS-I= risk of bias tool used to assess non-randomized studies of interventions (Sterne et al., 2016), Cochrane= risk of bias tool used to assess randomized controlled trials (Higgins & Green, 2011).

A GRADE assessment of the studies reporting out-of-home placements at child level found low certainty of evidence at three, six and 24 months and more than 2 years (see Appendix 3 GRADE Evaluation of Certainty of Findings). The evidence was downgraded due to the risk of bias of studies, the level of heterogeneity and publication bias.

The certainty of the evidence at 12 months was judged as moderate. The contributing evidence had many strengths, including the directness, precision of findings and large sample sizes. However, concerns remained regarding the risk of bias and heterogeneity of the studies. We did not employ the GRADE assessment tool for family-level studies as they had greater heterogeneity issues and less accuracy than the child level studies.

Fourteen studies had high fidelity to the Homebuilders model and 12 had low fidelity (see Table 1).

3.2 Main findings

Out-of-home placement rates at the child level were assessed in 18 studies. Two studies provided insufficient data for analyses (Rubin, 1997; Walton, 1997). The remaining studies include 30,283 children (2,938 in the intervention groups and 27,345 in the control groups). Meta-analyses were completed at all available time points, grouped as three, six, 12 and 24 months and more than two years. The direction of effect sizes was in favor of IFPS and consistent at three, six, 12 and 24 months (see Figures 2-5). RR of out-of-home placement at more than two years, based on only three studies where there was a considerable heterogeneity in terms of point of assessment (between 3.5 years and 6.5 years), showed non-significant reductions for placements (data not shown, available from the authors upon reasonable request).

Interventions with high fidelity to the Homebuilders model indicated significant reductions in placements at 12 months (see Table 2). However, fidelity analysis at six months and beyond

the two-year time point showed no significant benefit. There was insufficient data to complete subgroup analyses for low fidelity studies.

Controlled studies with moderate risk of bias demonstrated significant benefit of IFPS at 12 months. However, this subgroup analysis revealed no significant benefit beyond two years. Subgroup analyses were not possible for the other risk of bias ratings due to the small number of studies in each category. There was not a sufficient number of studies to complete subgroup analyses based on the quality of the contributing RCTs.

We pooled RR of out-of-home placement from the 14 family-level studies that investigated a total of 4,362 families (2,540 in the intervention groups and 1,822 in control groups). Data at different time points showed no significant benefit at one, three, six to seven, 12 and 18 months (see Table 2). The outcome time point was unknown for two studies (Nebraska Department of Public Welfare, 1981; Willems & Rubeis, 1981).

Interventions with high fidelity to the Homebuilders model suggested significant reductions in placements at one month. However, at three, six, 12 and 18 months there was no significant benefit. Subgroup analysis was not possible for low fidelity studies due to the small number of interventions that demonstrated poor adherence to the model.

RCTs judged as having an unclear risk of bias revealed significant out-of-home placements reductions at one month. The results were not significant at three, six and 12 months. Subgroup analysis was not possible for high risk of bias studies. There were too few studies to complete subgroup analyses based on the quality of controlled trials.

The funnel plot indicates the possibility of publication bias in child level studies, as small studies may only have been published if they yielded positive results (see Figure 6). This was also suggested by an Egger test ($p = 0.0002$) (Sterne et al., 2011).

Figure 1. PRISMA flow diagram.

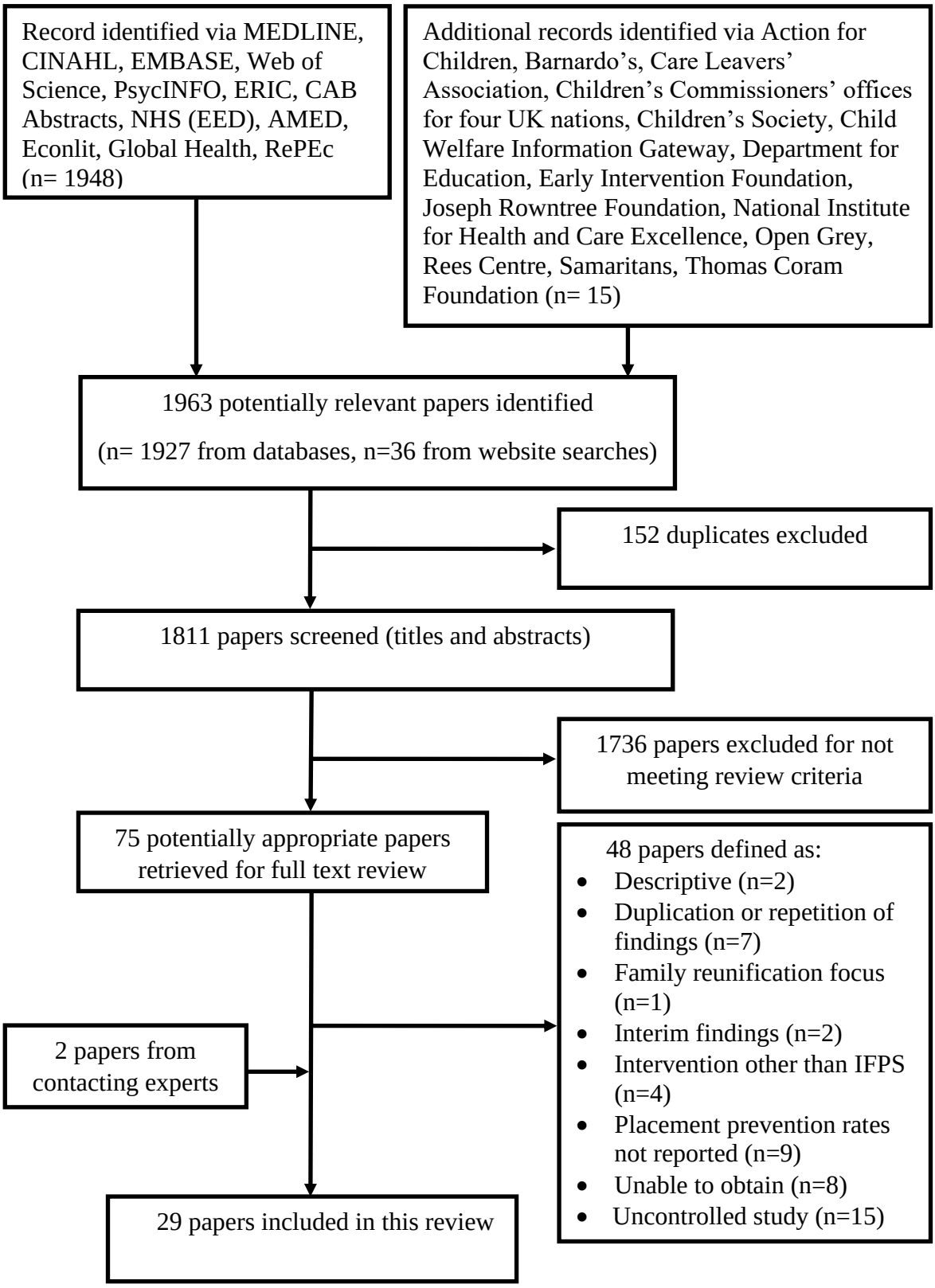


Figure 2: Relative risk of out-of-home placement at 3 months following IFPS intervention vs controls (random-effects model) (child level)

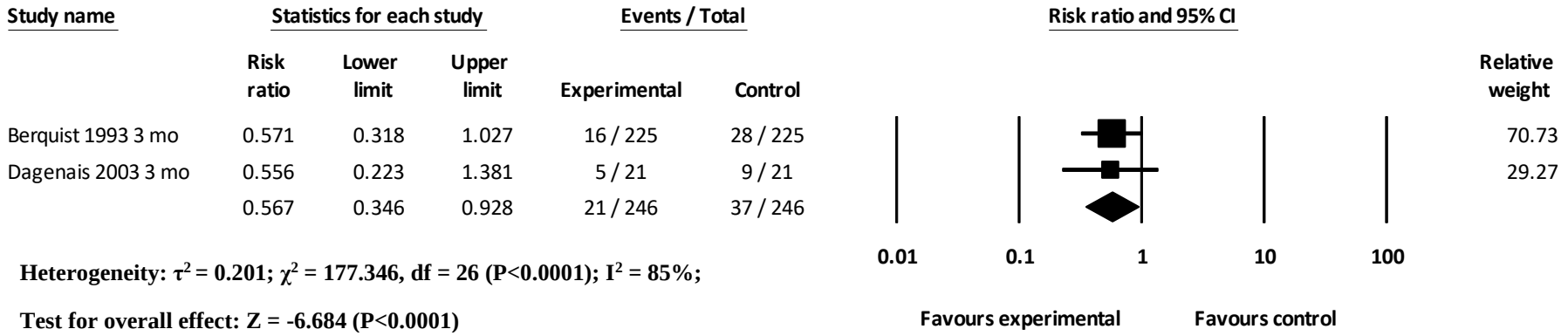
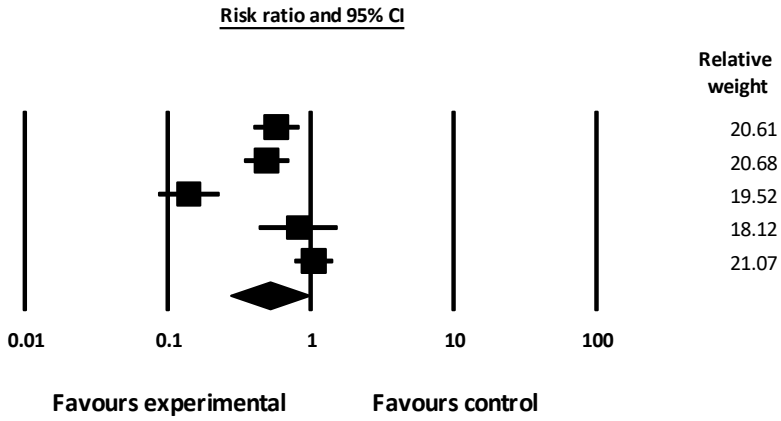


Figure 3: Relative risk of out-of-home placement at 6 months following IFPS intervention vs controls (random-effects model) (child level)

Study name	Statistics for each study			Events / Total		Relative weight
	Risk ratio	Lower limit	Upper limit	Experimental	Control	
Berquist 1993 6 mo	0.576	0.394	0.842	34 / 225	59 / 225	20.61
Biehal 2005 6 mo	0.492	0.340	0.713	36 / 144	33 / 65	20.68
Blythe 2002 & Walters 2006 6 mo**	0.141	0.085	0.232	14 / 120	68 / 82	19.52
Dagenais 2003 6 mo	0.818	0.431	1.552	9 / 21	11 / 21	18.12
Yuan 1990 6 mo	1.052	0.765	1.447	64 / 356	61 / 357	21.07
	0.512	0.272	0.965	157 / 866	232 / 750	



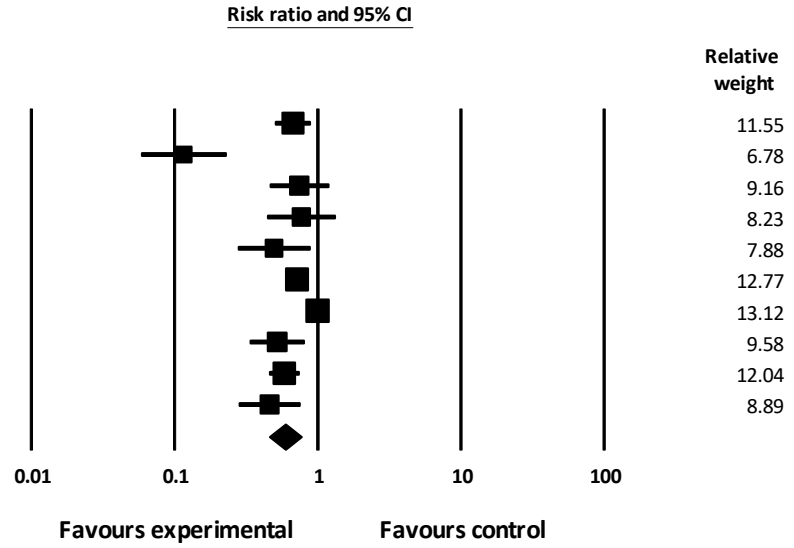
Heterogeneity: $\tau^2 = 0.201$; $\chi^2 = 177.346$, df = 26 (P<0.0001); $I^2 = 85\%$;

Test for overall effect: Z = -6.684 (P<0.0001)

** Figures for children living in foster care or with relatives.

Figure 4: Relative risk of out-of-home placement at 12 months following IFPS intervention vs controls (random-effects model) (child level)

Study name	Statistics for each study			Events / Total		Relative weight
	Risk ratio	Lower limit	Upper limit	Experimental	Control	
Berquist 1993 12 mo	0.671	0.500	0.901	53 / 225	79 / 225	11.55
Blythe 2002 & Walters 2006 12 mo**	0.116	0.058	0.233	8 / 120	47 / 82	6.78
Cilliberti 1998 12 mo	0.745	0.459	1.208	16 / 42	22 / 43	9.16
Dagenais 2003 12 mo	0.769	0.439	1.347	10 / 21	13 / 21	8.23
Dennis-Small 1986 12 mo	0.496	0.275	0.896	12 / 52	20 / 43	7.88
Jones 1976 8.5 mo*****	0.717	0.598	0.861	185 / 663	128 / 329	12.77
Kirk 2004 12 mo	0.998	0.867	1.148	146 / 542	6945 / 25722	13.12
Pecora 1991 12 mo^^	0.522	0.333	0.818	12 / 27	23 / 27	9.58
Schwartz 1991 12-16 mo	0.585	0.454	0.753	31 / 58	53 / 58	12.04
Wood 1988 12 mo	0.461	0.278	0.764	15 / 59	27 / 49	8.89
	0.586	0.454	0.756	488 / 1809	7357 / 26599	



Heterogeneity: $\tau^2 = 0.124$; $\chi^2 = 55.984$, df = 9 (P<0.0001); $I^2 = 84\%$;

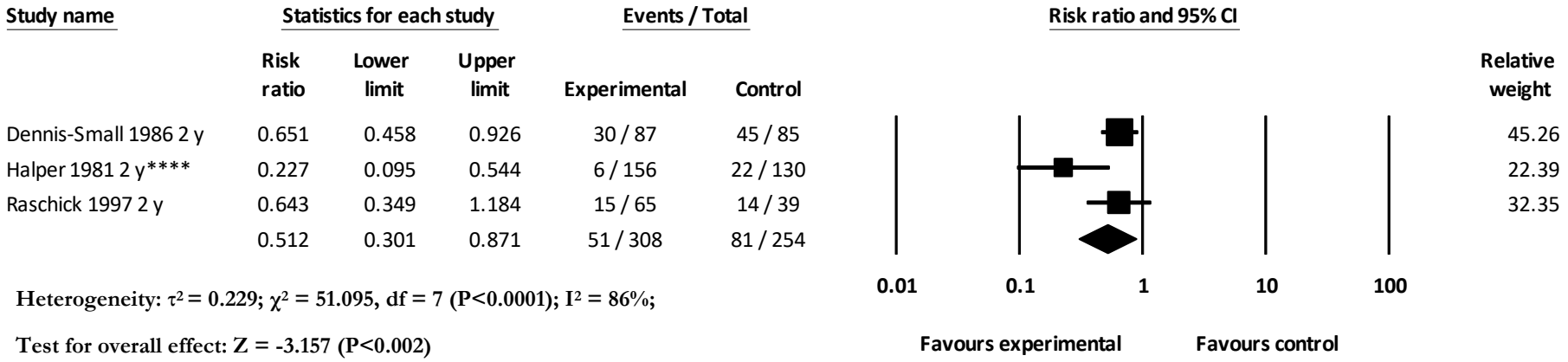
Test for overall effect: Z = -4.108 (P<0.0001)

** Figures for children living in foster care or with relatives.

***** The maximum length of service was 12 months. The average length was 8.5 months (9.5 months in the New York service and 7.5 months in Monroe).

^^ Utah only with a matched treatment and comparison cases.

Figure 5: Relative risk of out-of-home placement at 24 months following IFPS intervention vs controls (random-effects model) (child level)



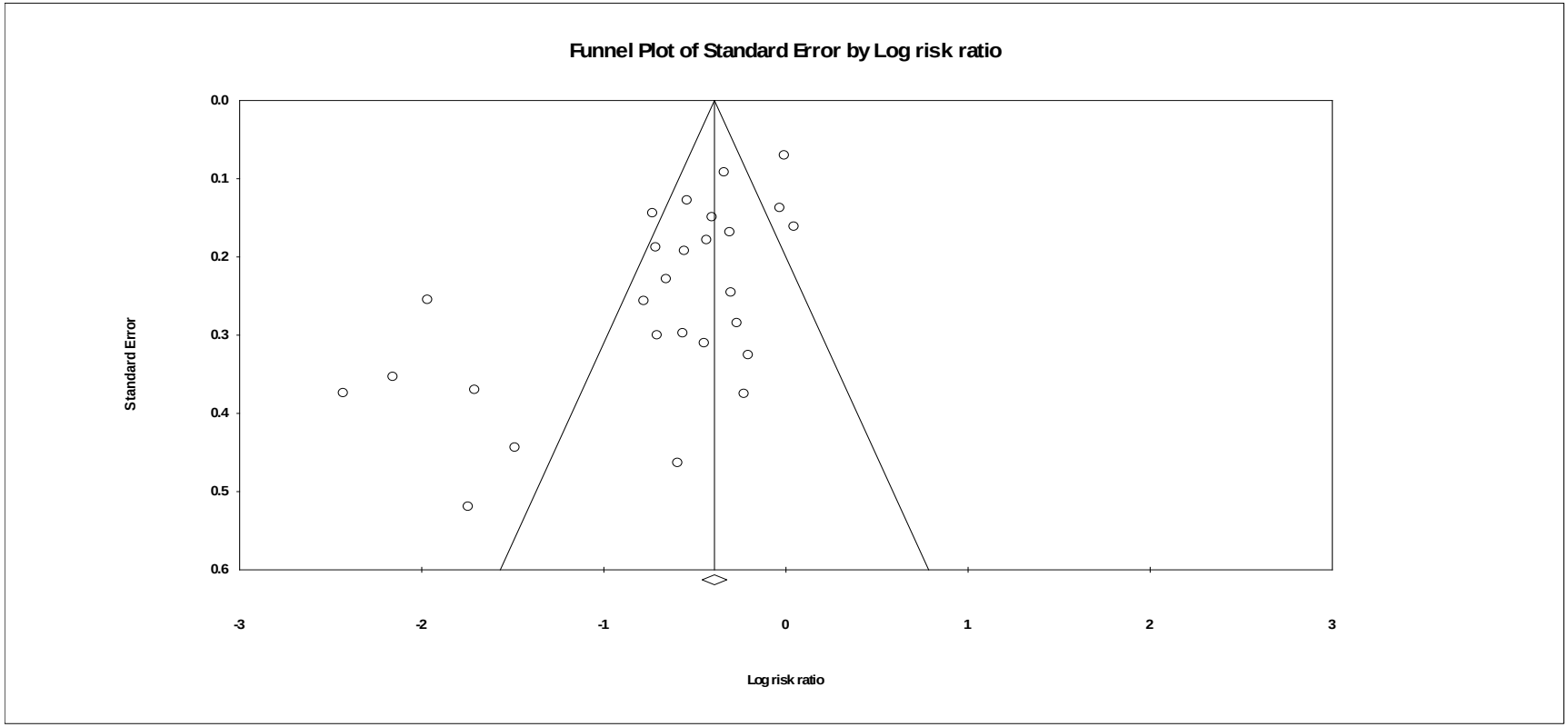
**** Follow-up was until case closure or the end of evaluation period. The average length of service covered by the evaluation was 14 months for the treatment group and 8 months for the control group.

Table 2. Relative risk of out-of-home placement following IFPS or usual care.

Unit of analysis	Months after IFPS or usual care (RR (95%CI))						
	1 month	3 months	6 months	12 months	18 months	24 months	48 months +
Child level (16 studies)							
Overall	-	0.57 (0.35- 0.93)	0.51 (0.27- 0.96)	0.60 (0.48- 0.76)	-	0.51 (0.30- 0.87)	0.63 (0.36- 1.12)
High fidelity*	-	-	0.23 (0.04- 1.45)	0.57 (0.42- 0.77)	-	-	0.44 (0.08- 2.37)
Moderate risk of bias**	-	-	-	0.72 (0.53- 0.99)	-	-	0.44 (0.08- 2.37)
Family level (12 studies)							
Overall	0.78 (0.57- 1.06)	0.71 (0.46- 1.10)	0.97 (0.77- 1.22)	1.03 (0.86- 1.23)	1.13 (0.95- 1.33)	-	-
High fidelity*	0.71 (0.51- 0.98)	0.71 (0.47- 1.08)	0.88 (0.64- 1.20)	1.03 (0.82- 1.30)	1.18 (0.88- 1.58)	-	-
Unclear risk of bias**	0.58 (0.36- 0.95)	0.71 (0.47- 1.08)	0.73 (0.42- 1.26)	0.93 (0.64- 1.35)	-	-	-

Note: *Too few studies had low fidelity to the Homebuilders model to conduct sub-group analysis. **Subgroup analysis could not be completed for other risk of bias categories due to the small number of studies in each category.

Figure 6. Funnel plot showing the log odds ratios of relative risk of out-of-home placement at any time point following IFPS or usual care (Child level).



3.3 Economic findings

Seven studies included a partial economic evaluation, five of which applied a cost-cost offset analysis approach where the costs of the intervention were compared to the economic costs saved (Berquist et al., 1993; Forrester et al., 2008; Halper & Jones, 1981; Jones, 1976; Wood et al., 1988). One study took a cost-offset analysis approach by measuring the costs offset without considering the cost of the intervention itself (Raschick, 1997). The final study presented economic data in the form of a cost analysis, comparing the cost of IFPS to the cost of standard child protection services (Dennis-Small & Washburn, 1986).

The studies by Jones (1976), Halper and Jones (1981), Berquist et al. (1993) and Forrester et al. (2008) all concluded that IFPS are cost saving. They based the cost of IFPS on government spending or project expenditures rather than an assessment of opportunity costs. Unlike the other studies, the study by Berquist et al. (1993) valued cost savings at the state level rather than at the individual level; they estimated a cost saving of $55,318,000 (1990 US dollars); to the state of Michigan; however, the economic data presented lacked granularity. The study by Dennis-Small and Washburn (1986) suggests that IFPS may be a more costly intervention than standard practice. In contrast, the evaluations by Raschick (1997) and Wood et al. (1988) indicate that IFPS may be cost saving (see Appendix 2 economic analysis data in supplementary materials).

4. Discussion

This comprehensive systematic review of the international published literature shows that at child level, IFPS significantly decreased the likelihood of out-of-home placement up to two years after the intervention. For studies that measured outcomes at family level, IFPS did not statistically decrease the likelihood of placements.

The economic analyses suggest that IFPS is potentially a cost-saving intervention. However, the surrogate use by several studies of government or project expenditures associated with IFPS may not provide an accurate assessment of their economic costs. Future studies should apply established cost accounting methods for economic evaluations, using either detailed information about the resources used by individual participants, or by allocation of total costs by organizational workload.

Whilst four out of the seven studies included in the review concluded that IFPS are cost-saving, these were not robust analyses and many features required by international methodological and reporting standards for economic evaluation, such as the requirements to report the dates of the estimated resource quantities and unit costs and to describe all analytical methods supporting the evaluation, were absent. More fundamentally, we were unable to identify any full economic evaluations of IFPS. Such analyses will be required to inform whether investments in IFPS represent efficient use of scarce public resources and whether IFPS should be adopted into routine practice on economic grounds.

4.1 Strengths and limitations

The methodology of this review included all available information (published and unpublished) and comprehensive search strategies without language or geographical restrictions. The existing literature suggests that combining only published studies may lead to an over-optimistic conclusion, as it is often found that studies that do not have positive findings are less likely to be published (Bland, 2014).

There are several limitations of this review. The first stems from the numerous studies with low methodological quality and the difficulties we experienced in obtaining publications from the 1970-80s. We were unable to retrieve eight studies and included data from secondary sources where possible to avoid bias in our findings. However, we were not able to assess the quality or program fidelity of these studies.

Second, the included studies reported placement outcomes at either family or child level and therefore it was not possible to pool data from all studies. As a result, separate meta-analyses were completed, and subgroup analyses were often not possible due to the small number of studies in each category.

Finally, the review only reports on success in reducing out-of-home care. We therefore have some confidence that IFPS can reduce the use of out-of-home care, but cannot comment on the impact this has on children's short or long-term welfare and safety.

4.2 Interpreting the findings

This review suggests that IFPS tends to reduce out-of-home placement. However, the strength of findings for child level and family level outcome analysis was different. There were two types of child level analysis. In two studies (Berquist, 1993 and Ciliberti, 1998) one "target" child was identified for each family. In all other studies all the children who were the focus of intervention were included. Blythe et al. (1994) previously highlighted the difficulty of outcomes being reported at a mixture of child and family levels. These authors suggested that the unit of analysis should be selected based on the data that are being collected and the outcomes that are assessed. Child level data were considered to be useful when considering placement outcomes and the associated cost as public agencies are interested in the resources spent per child, rather than per family.

The finding that child level analysis found stronger findings than family level analysis is difficult to interpret as there are multiple possible explanations; (a) only selecting one child from each family has the potential to underestimate the impact of reducing care as it excludes the impact of preventing sibling groups from entering care; (b) on the other hand, family grouping effects mean that the impact of the intervention should not be evaluated as if each child was a completely separate case. Studies did not take these considerations into account through multi-level modelling, so it is possible that they over-estimate effect at child

level. For future studies we recommend that 'all children' is the appropriate level of analysis with statistical allowance for grouping effects. For the current review the uncertainty over the impact of these possible issues adds a level of necessary caution in interpreting the results. Furthermore, the high levels of heterogeneity indicate that while the core model of IFPS was relatively clearly delineated, the ways in which it was delivered varied significantly. We know from published information that IFPS was targeted at different groups, offered for varied time periods and delivered in somewhat different ways across studies. In addition, there was much information that was impossible to capture in studies. For instance, the quality of the service experienced by families varied. Some of this variation is probably reflected in the range of success across different studies. There were a few studies where the IFPS seemed to have little or no impact. In most studies, including almost all of those reporting child level outcomes, IFPS reduced care and in a few of these it was very successful.

5. Conclusions

Overall, the findings from this review suggest that IFPS promise a way of reducing the need for children to enter care. The variation in effectiveness suggests that the quality of implementation is likely to be crucial in influencing how effective IFPS are in reducing care entry. Future studies should consider child welfare outcomes, cost-effectiveness or cost-benefit outcomes, as well as care entry.

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